October 10

2025

PNWIG Inspection Services

INSPECTION REPORT

Inspection Performed at

16813 Northeast 33rd Street Bellevue, WA 98008

PERFORMED FOR
Elisabeth Landels
(425) 503-5805
elisabeth.landels@gmail.com

SIDE SEWER EVLAUATION

INSPECTED BY:

Tyler Spencer
Licese Number(s): 1479, 6556, and 176898
Tyler Spencer

Location of Camera Scope:

Observed from 3 separate clean-outs.

Backwater valve installed.

Length Of Camera Line Ran: 130 (feet)

Sewer Usage	Residential	Condominium	Apartment	Commercial
	X			

Line Material	Concrete	SDR 35	Cast Iron	Clay Tile	PVC	ABS	Copper
	X	X		X		X	

Clean Out Access	Exterior Clean-out	Interior Clean-out	No Clean-out Found	Access Rusted/Sealed Shut	Obstructed
	X	X			

Line Condition	Poor Slope	Negative Slope	Low Area / Belly	Roots	Line Offset	Broken Line	Waste Build Up	Normal Conditions
								X

Property has a working backwater valve and Due to the nature of older concrete line systems, increased friction and granularity of material may cause waste to sit in line. Care should be taken to flush only waste material in the system to minimize chances of blockage.

Observed lines in acceptable condition. No recommendations at this time.

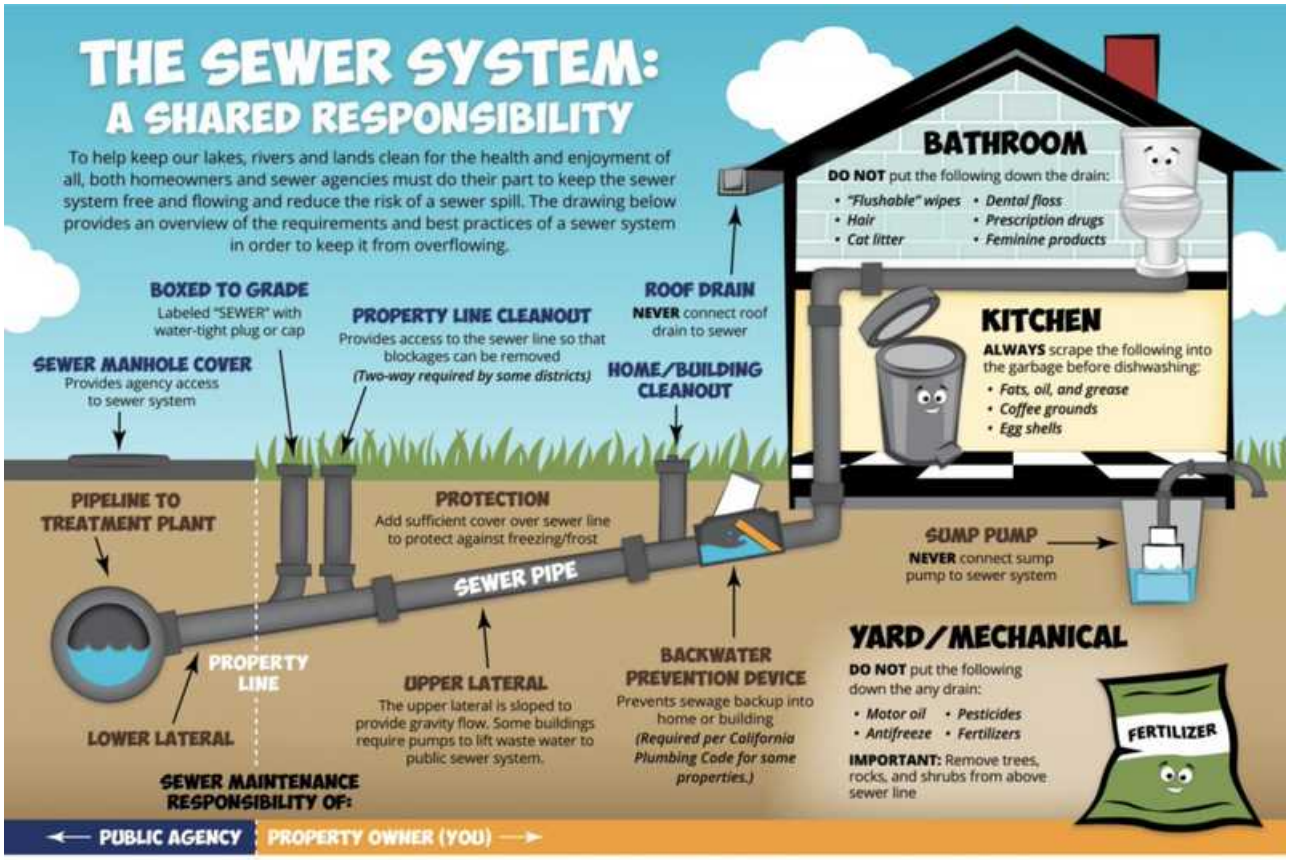
https://s3.amazonaws.com/ispecx-production/pnwig/appliance_fields/videos/000/009/397/original/2025-10-07-18-23-18.mp4?1760043213

NOTICE: *Some browsers will not play the video, if the video is not playing please copy the link below the video and paste it into your browser bar to play directly (in some cases this may download the file) or try another Browser. Safari & Chrome typically play videos with no issue. IE works with Copy Paste, Firefox Plays, and Microsoft browsers that have issues.*

Our service provides video pipe inspection and documentation of pipes two (2) inches or greater inside diameter pipe, and helps detect problem areas due to some of the following problems: broken lines, roots, offset joints, crushed lines, major low areas in the pipe, debris in the pipe and other visually identifiable objects, obstructions, or serious problems in the pipe interiors. A sewer scope inspection is a video camera inspection to inspect the main sewer line from the house to the street or sewer service point to the property. The line is scoped from one access point until the camera reaches the main or can not be pushed any further than 200' due to the inability to push the camera further. The line is accessed through a cleanout or access point in the home, which could include a basement/crawlspace clean out a toilet drain line, or a roof vent. The inspector will determine the best access point, and the report will outline where the line was entered. The camera inspection does not scope every drain line in the home or all the drain lines running underneath the basement slab, for example. The intent is to inspect the line that runs from the house to the final service point and to inspect this buried line for major defects.

Pacific Northwest Inspections Group provides its customers with an unbiased video pipe inspection. Our cameras are used to get a different perspective (i.e. the inside of the pipe) but neither the equipment nor the operator of this equipment is to be used to make engineering, repair, or replacement decisions without consulting a licensed plumber or engineering professional. PNWIG services help give you information, which would otherwise be inaccessible, to assist you in your decision-making process.

PNWIG also locates areas identified in the report that may cause issues or need repairs. The approximate depths will be reported. Because of the possibility that electrical or atmospheric disturbance can affect our equipment, there is no guarantee is made of the exact locations, depths, or position of any potential problem area, Excavation of such an area is done at your risk and should only be done after consultation with a licensed plumber. We do guarantee that we will use our best effort and workmanlike manner to provide you with the best report possible. Your sole remedy for any PNWIG shall not be liable for any consequential damages or service decisions made based on the interpretation of this report.



COMMON PROBLEMS IN SEWER SYSTEM

Root infiltration:

Tree roots are a very common problem for sewer lines constructed prior to the early 1980s. This is because these sewer lines were built using VCT (vitreous clay tile) pipe. Clay tile pipe tends to leak water at the joints. When originally installed, plumbers "sealed" the numerous joints in the clay tile sewer line with materials such as concrete, coal tar, oakum, or rubber gaskets. Unfortunately, all these sealing materials deteriorate over time, allowing water to escape, beginning an underground "drip system" attracting tree roots. Once tree roots get between the joints, they continue to grow, spreading the joint. As the joint spreads, it leaks more water. If tree roots are allowed to grow large enough, they will eventually break the clay tile pipe. Inside the clay tile pipe joint, tree roots initially act as a filter, allowing water to pass through while straining out other products sent through the line. As soon as the roots have trapped enough material, all water flow is stopped, resulting in sewage backup.

Misaligned or off-set pipes:
Underground pipes are installed in sections or segments ranging from 2' to 20' or more. When connected sections do not line up perfectly with one another, they are referred to as being "off-set." Sewer lines built from the 1800s up to the mid-1980s were constructed using a large number of short sections, typically 2' to 4' in length, of VCT (vitreous clay tile) pipe. These sewer lines are particularly subject to off-sets due to their large number of joints. During construction, the joints were sealed with products such as concrete, coal tar, oakum, rubber gaskets, and on occasion, nothing at all. Over time, these sealants erode away, allowing the pipe to then settle down into the "hub" of a connected pipe, creating a slight offset. In most clay pipes, off-sets will not exceed 1/4" unless the pipe is broken at the hub.

Broken or collapsed pipe:
Although properly installed PVC pipes are supposed to have a lifespan of well over 100 years, older pipes are usually made from clay tile, steel, or some other material that may only last 50 or 60 years. If you have an older home that was built before the late 1980s, there's a good chance you're dealing with clay pipes. It's common for tree roots to wedge their way into pipes. Trees love moisture! After a while, the roots grow so dense and matted that they plug up the pipe completely. Sewer pipes can also get clogged up with an accumulation of grease, muck, and other nasty stuff that gets washed down there day after day. And sometimes sewer lines just plain break, collapse, or rot away. Tree roots have a way of hastening this process.

Foreign objects blockage:
Foreign objects frequently work in conjunction with oily deposits to create a clog. Inside a clean pipe, a foreign object, such as a child’s toy, will easily flush out of your home, into the city sewer or septic. However, unless they have been recently cleaned, few homes’ sewer pipes are 100% clear of deposits. Once in the sewer pipe, a foreign object will likely become embedded in the oily deposit. Like a grain of sand that finds its way into an oyster, the foreign object provides additional surface area for the fatty deposits to build upon. In the end, the deposits reduce the functional diameter of your sewer line until they become a clog.

Bellied or sagged pipes:
Under normal conditions, sewers are installed with a fall of 1/4" per every foot of length. Under difficult circumstances, a bare minimum of 1/8" fall per foot is acceptable, although not preferred. A low area can be identified by seeing the sewer continue to hold water after the flow has stopped. Problems begin when incoming water is flushed down the sewer line and hits a "blockage" of standing water. Severe low areas cause the water (along with the debris it is transporting) to lose speed and settle in the low area, eventually causing a clog. Low areas can be caused by a number of factors, such as shifting soil, poor soil compaction, poor installation, or a broken pipe (usually at a joint) that is settling. Unfortunately, the only way to correct a low area is to excavate the affected area and re-install the pipe at the proper grade. Since this corrective action is so extreme and often costly, it should only be corrected if it is truly causing an actual problem, not just "lacking perfection" for a short distance.

Leaking pipe joints or cracked pipe:
Clay pipes can leak or crack as they deteriorate with age and also by earth movement and tree root infiltration. Cast-iron pipes crack most likely due to the hydrogen sulfide gas collecting in concentration and the resulting acidic attack weakening the pipe wall.

Corroded cast-iron pipes:
Cast iron pipe is subject to corrosion when the pH level inside the pipe drops to below 4.3 for

an extended length of time. When cast iron waste pipes fail, it's usually due to corrosion from within. As a result of what runs through waste lines, hydrogen sulfide gas can form. This can oxidize and produce sulfuric acid, which corrodes cast iron. Some drain cleaners also contain sulfuric acid and, if used continuously, can accelerate the corrosive action and shorten the life of the cast iron piping system.

METHODS FOR REHABILITATION OF SEWER PIPES

Rehabilitation methods of sewer pipes can be summarized as follows:

• Chemical grouting: A soil sealing process that employs a two-part liquid chemical grout that solidifies after curing. The grout is remotely applied under pressure to leaking joints or laterals and small cracks in sewers and manholes to seal the voids within the soil surrounding the exterior of the pipe at the point of leakage.

• CIPP (cured-in-place) lining: An internal liner is formed by inserting a resin-impregnated felt tube through the manhole into the sewer. The liner is then expanded against the inner wall of the existing pipe and allowed to cure.

• Fold and form liner: A folded thermoplastic pipe is pulled into place through a manhole and then rounded, using heat, steam, and air pressure to conform to the internal diameter of the existing pipe.

• Slip lining: An access pit is excavated adjacent to an existing sewer, and a liner pipe of The slightly smaller diameter is slid into the existing pipe to create a continuous, watertight liner between the two manholes.

• Pipe bursting: An access pit is excavated adjacent to an existing sewer, and the pipe is broken outward by means of an expansion tool. A flexible liner pipe of equal or larger diameter is pulled behind the bursting device as a replacement sewer.